

## Abstract

A k-band frequency mixer for use with a low noise block downconverter is provided. The mixer utilizes a ku-band integrated circuit topology in a sub-  
5 harmonically pumped arrangement to downconvert a k-band radio frequency (RF) to an intermediate frequency (IF). In particular, an RF of from about 17 GHz to about 21 GHz is combined with a local oscillator frequency of about 9.75 GHz to about 11.3 GHz and then fed into an integrated circuit with an anti-parallel diode pair to produce an intermediate frequency (IF) of from about 950 MHz to  
10 about 2.15 GHz. Due to the accessibility of the integrated chip design used in this invention, mixers for use in the k-band frequency range may be wider distributed and are made more readily available and at a lower cost.